



U.S. Department  
of Transportation

Research and  
Special Programs  
Administration

400 Seventh Street, S.W.  
Washington, D.C. 20590

APR 6 2004

DOT-E 8865  
(NINTH REVISION)

EXPIRATION DATE: March 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Carleton Technologies Inc.  
Orchard Park, NY
2. PURPOSE AND LIMITATIONS:
  - a. This exemption authorizes the manufacture, mark, sale and use of a gas storage system consisting of a non-DOT specification cylinder equipped with pyrotechnic relief devices. The cylinder must conform with all regulations applicable to a DOT Specification 39 cylinder for the transportation in commerce of helium. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
  - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.302a(a) and 175.3 in that the use of a non-DOT specification package is not authorized, except as specified herein.
5. BASIS: This exemption is based on the application of Carleton Technologies Inc. dated December 31, 2003, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Helium, compressed	2.2	UN1046	N/A

**Note:** A missile gas storage system or component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in § 173.56. If the pyrotechnic material augments the volume of the gas in the cylinder, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration as when shipped.

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is described as a gas storage system and consists of a non-DOT specification cylinder equipped with two (2) Division 1.4 pyrotechnic devices. The gas storage system must conform with Carleton Technologies Inc.'s drawing 3505-0002, P/N B11461-1, B13748-1, and B18755-1 dated March 29, 1990, and other referenced drawings on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and DOT Specification 39 (§ 178.65), except as follows:

§ 178.65(a) *Type, size, service pressure and test pressure.*

Each cylinder must be made from steel and have a seamless cylindrical body with the bottom attached by means of a circumferential mechanical joint with a service pressure not to exceed 8,500 psig.

(1) *Size limitation.* Maximum water capacity may not exceed 170 cubic inches.

(2) *Test pressure.* The minimum test pressure is 15,000 psig.

\* \* \* \* \*

§ 178.65(b) *Material*. Material must be one of the following heat treatable steels: Carpenter custom 455 or PH 13-8 Mo steels.

§ 178.65(c) *Manufacture*.

\* \* \*

(4) Add - "All welds must be 100 percent radiographically inspected".

§ 178.65(f) *Pressure tests*.

(1) \* \* \*

(2) One cylinder randomly selected from each lot must be hydrostatically tested to failure. The entire lot must be rejected if (see § 178.65(h)) a failure occurs at a gauge pressure less than 2.5 times the marked service pressure.

(3) A "lot" is defined as the quantity of pressure vessels fabricated from the same heat of steel, manufactured by the same process and heat treated in the same equipment under same conditions of time, temperature and atmosphere and shall not exceed a quantity of 200.

§ 178.65(g) *Flattening test*.

\* \* \*

(3) (Add) Flattening between flat plates is authorized. Flattening must continue until test specimen fails.

(4) Cylinder or test ring may not crack when flattened so that their outer edges are not more than 15 times wall thickness apart. Failure point must be recorded in the inspector's test report as multiples of the cylinder wall thickness.

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## § 178.65(i) Markings.

\* \* \*

(2) Required markings are as follows:

(i) "DOT-E 8865" instead of "DOT-39".

(ii) ("NRC" Does not apply).

(iii), (iv), (v), (vi), (vii) \* \* \*

(viii) ("Refilling penalty" does not apply).

\* \* \*

b. TESTING - Prototype packagings must have been qualified under the qualification program as described in the application on file prior to initial shipment.

c. OPERATIONAL CONTROLS -

(1) The cylinder must be shipped in strong outside packagings in accordance with the provisions of § 173.301(g)(9).

(2) Each cylinder may be refilled a maximum of five times to a pressure not exceeding 8,500 psig, provided each cylinder is visually inspected and proof pressure tested to 15,000 psig prior to refilling. Refilling is authorized to be performed by Carleton Technologies only. Topping off is considered a refilling. The serial number of each cylinder that has been refilled must be reported to the AAHMS at the times of the next renewal application.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

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- b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modification or change is made to the package or its contents and it is offered for transportation in conformance with this exemption and the HMR.
- c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.
- d. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.
- e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.
- f. Each cylinder design must be qualified by subjecting a representative cylinder to a pressure reversal (cycle) test from approximately zero to service pressure at a rate not to exceed 10 cycles per minute. Test cylinder must withstand at least 1,000 cycles without distortion or defect.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo aircraft only.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard aircraft used to transport packages covered by this exemption. The shipper shall furnish a current copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.

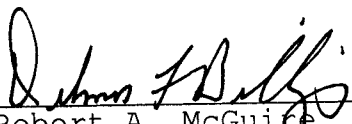
- o Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.

*for*   
Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

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(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.  
Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: CWFREEMAN/sln